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Appendix D

Guidelines for Proposal Preparation

for the

Pluto-Kuiper Express Mission

APPENDIX D

GUIDELINES FOR PROPOSAL PREPARATION FOR THE PLUTO-KUIPER EXPRESS MISSION

TABLE OF CONTENTS

TABLE OF TABLES

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GUIDELINES FOR PROPOSAL PREPARATION FOR THE PLUTO-KUIPER EXPRESS MISSION

The following guidelines apply to the preparation of proposals in response to the Pluto-Kuiper Express Mission part of the AO for the Outer Planets Program. The material is a guide for the proposer and not intended to be encompassing or directly applicable to the various types of proposals that can be submitted. The proposer is to provide information relative to those items applicable or as required by the AO. In the event of an apparent conflict between the guidelines in this appendix and those contained within the body of the AO, those within the AO shall take precedence.

1. General Guidelines

All documents must be typewritten in English, use metric units, and be clearly legible. Except as noted below, submission of proposal material by facsimile, electronic media, videotape, floppy disk, etc., is not acceptable. In evaluating proposals, NASA will only consider printed material. Proposals may not reference a World Wide Web site for any data or material needed to understand or evaluate the proposal.

In addition to providing the data in the printed proposals, proposers must submit a copy of the text of their proposal on either 3.5-inch diskettes or a 100 MB Zip disk that is to accompany their original, signed proposal. The text of the proposal must be in text-only format while the budget data, including the headings for the rows and columns, must be in tab-delimited text format in files separate from the text of the proposal. The diskettes and Zip disks may be either PC-compatible or Macintosh-compatible and must be labeled with the title of the proposal and the PI's name.

The proposal must consist of only one volume, with readily identified sections corresponding to items 3.1 through 3.13 below. Note the guidance on page count for the various sections specified in Tables 1 and 2.

In order to allow for recycling of proposals after the review process, all proposals and copies must be submitted on plain white paper only (e.g., no cardboard stock or plastic covers, no colored paper, etc.). Photographs and color figures are permitted if printed on recyclable white paper only. The original signed copy (including cover page, certifications, and non-U.S. endorsements) must be bound in a manner that makes it easy to disassemble for reproduction. Except for the original, two-sided copies are preferred. Every side upon which printing

appears will be counted against the page limits. A 3-ring binder is acceptable for the original signed copy. The other copies for review must be stapled but not otherwise bound.

2. Page Limits

While there is no limit on the total size of the proposal, there are limits on the sizes of several key components. See Tables 1 or 2 depending on the type of proposal being submitted. Proposals may contain fold-out pages up to a size of 11 x 17 inches (28 x 43 cm), but such fold-out pages count as two pages on each printed side against the page limit. All pages other than fold out pages shall be 8.5 x 11 inches or A4 European standard.

Table 1. Page limits for proposals to develop and use the Ultra-Stable Oscillator or a complete package of remote sensing instrumentation

Section of Proposal	Section of Guidance	Page Limits
Cover Page/Investigation Summary	3.1	Use printed web form
Table of Contents	3.2	No limit
Description of Scientific Investigation	3.3	25
Technology Plan	3.4	5
Education/Public Outreach	3.5	4, use printed web form
Implementation Plan, Management, Schedule, Cost and Cost Estimating Methodology	3.6	20
Appendices: (No others permitted) Resumes (2 pages maximum each) Statements of commitment from Co-Investigators Letter(s) of Endorsement Contractual Statement(s) of Work NASA PI Hardware Selection Process References Acronyms List (optional)	3.7 through 3.13	No page limit, but small size encouraged

Table 2. Page limits for proposals to develop and use other flight instrumentation

Section of Proposal	Section of Guidance	Page Limits
Cover Page/Investigation Summary	3.1	Use printed web form
Table of Contents	3.2	No limit
Description of Scientific Investigation	3.3	20
Technology Plan	3.4	5
Education/Public Outreach	3.5	4, use printed web form
Implementation Plan, Management, Schedule, Cost and Cost Estimating Methodology	3.6	20
Appendices: (No others permitted) Resumes (2 pages maximum each) Statements of commitment from Co-Investigators Letter(s) of Endorsement Contractual Statement(s) of Work NASA PI Hardware Selection Process References Acronyms List (optional)	3.7 through 3.13	No page limit, but small size encouraged

Single- or double-column format is acceptable. In complying with the page limit, no page is to contain more than 55 lines of text, the margins all around must be one inch wide or wider, and the type font must not be smaller than 12-point Times (i.e., approximately 15 characters per inch). Figure captions must be in 12 point. Figures and cost tables may contain smaller font as long as they are easily legible.

3. Contents of Proposals

The content of each proposal is described below. Remote sensing instrumentation is considered a "complete package" if the proposed instrumentation can be used to meet essentially as much of the Pluto-Kuiper Express Group 1 objectives as an imaging and spectroscopy system that combines the functionality described in the strawman instrument package of Sections 2.1.4.1 through 2.1.4.3 of Appendix E, the Pluto-Kuiper Express Mission and Project Description. Proposals offering to develop and use the ultra-stable oscillator or a complete package of remote sensing instrumentation are allowed somewhat more pages for

describing their investigations than other proposals that might be submitted. (See Tables 1 and 2.)

3.1 Cover Page/Investigation Summary

All proposals must be prefaced by an integrated Cover Page/Proposal Summary that contains important, required information (see below). Produce this item by first entering the requested information electronically through the World Wide Web site given in Section 4.2 of this appendix. Section 4.2 of this appendix also provides a point of contact for any proposer who does not have access to the Web or who experiences difficulty in using the specified site. Use a printed copy of the electronically submitted form to obtain original signatures of the PI and an official from the proposing institution to submit with the original copy of the proposal. In addition, use reproductions of this original *Cover Page/Proposal Summary* to preface the required printed copies of the proposal.

The names, addresses, telephone and fax numbers, and electronic mail addresses of the Principal Investigator, all Co-Investigators, and the authorizing official shall be included. In addition, the electronic *Cover Page/Proposal Summary* form will provide a block of space (about one page in length) for a self-contained Proposal Summary of the proposed research activity. The Proposal Summary is intended to provide background and perspective to the interested reader and, therefore, must include the following key information:

- A description of the key, central objectives of the proposed research in terms sufficient for a nonspecialist not familiar with the document to grasp its essence;

- A statement of methods proposed to accomplish those proposed objectives; and

- The perceived significance of the proposed investigation to NASA OSS interests.

Note: NASA intends to publish the proposal title, the PI name and institution, and the Proposal Summary of every selected investigation in a public data base. Therefore, the Proposal Summary must not include proprietary information that would preclude its unrestricted release (see also Appendix A, Section 5).

Changes (such as whiteout or strikethrough) to the printed Cover Page/Proposal Summary are not permitted. The proposer may make needed changes to the information submitted electronically only by editing the electronic submission following the instructions at the World Wide Web site given in Section 4.2 of this appendix. After submitting the final Cover Page/Proposal Summary electronically, the proposer must then print the correct and final version and obtain the necessary signatures.

Note: The authorizing institutional signature now also certifies that the proposing institution has read and is in compliance with the three required certifications printed in full at the end of this appendix. NASA does not, therefore, require institutions to separately submit these certifications with the proposal.

3.2 Table of Contents

The proposal must contain a table of contents that parallels the outline provided below in Sections 3.3 through 3.13.

3.3 Description of Scientific Investigation

The description must cover the scientific objectives of the proposed investigation, the quantity and quality of data needed in order to perform the investigation, how the Pluto-Kuiper Express mission and the proposed instrumentation will acquire the needed data, operational constraints that must be met while acquiring the data, how the data will be analyzed, and how the data products will be used to achieve the scientific objectives.

1. Scientific Goals and Objectives. This section must consist of a discussion of the goals and objectives of the investigation, the value of the investigation to the scientific understanding of the Pluto system and to the overall advancement of the Solar System Exploration theme of Space Science. It must describe the history and basis for the proposal and must discuss the need for such an investigation. This section must also include a summary of how the proposed investigation addresses each of the Group 1 objectives and any applicable Group 2 or Group 3 objectives for the Pluto-Kuiper Express.

2. Science Implementation. This section must describe how the investigation will accomplish its goals and objectives. The description must include an overview of how the mission and instruments will get the data for the investigation. The quality of the data to be returned (resolution, coverage, etc.) and the quantity of data to be returned must be described. The relationship between the data products and the scientific goals and objectives must be described.

   This section must also describe the instrumentation. The required performance and the expected margins in performance must be covered. The required performance for visible imaging must include the optical navigation requirements given in Section 2.1.4.1 of Appendix E, the Pluto-Kuiper Mission and Project Description. In describing the instrumentation, the proposal must present the scheme for ensuring that optics, sensors, electronics, and other parts of the flight instrumentation will

withstand the anticipated space environment through the nominal mission. There must also be a description of the resources required by the instrumentation, the margins planned for these resources, and a comparison of the requirements to the limits on the resources given in Section 3.1 of Appendix E, the Pluto-Kuiper Mission and Project Description.

This section must also describe how the mission and instrumentation will work together, covering all phases of the program from selection through encounter.

The strategy for acquiring and managing data must be described, and an integrated and coordinated observing sequence must be given which puts the strategy into a practical form and includes the needs of the spacecraft and of the other science teams. The integrated and coordinated observing sequence must cover sequences of events with one-day resolution as necessary for events leading up to encounter and must cover sequences of events on a daily basis for the nominal encounter phase. The observing sequence must integrate all the observations of the proposed instrumentation in order to meet the scientific objectives proposed for the specific investigation. The observing sequence must coordinate the observations with other Group 1 investigation requirements and mission operations requirements given in Section 2 of Appendix E, the Pluto-Kuiper Mission and Project Description. Proposals must provide enough detail to demonstrate the capability of the mission to accomplish their data collection and management activities in the context of the activities entire mission.

This section must also describe how the data will be analyzed and archived. In addition to descriptions of the various data products, the plans for equipment and staffing must be given, along with the rationale for the plans. The plans for releasing data to the public domain must be described.

The relationship between the proposed scientific objectives, the data required to achieve those objectives, and the instrument performance and mission operations needed to obtain those data must be quantitatively presented in the proposal in a clear and unambiguous way.

Finally, this section must also describe the science team, their responsibilities, their relevant experience, and, if appropriate, how their experience is relevant to their responsibilities. The strategy for maintaining expertise during the long time from launch to encounter must be described.

3.4 Technology Plan

This section must describe both the extent to which the proposed investigation will advance the state of the art through the infusion of new technology and the plans for transferring advanced technology associated with the investigation to other potential users in the United States. In describing the infusion of technology, the proposal must provide references to the state of the art and metrics that quantify the degree of advancement that the investigator expects to achieve. In describing plans for transferring technology, the proposal must identify potential users and provide data on why the potential users would find the new technology useful.

3.5 Education/Public Outreach

Guidelines for this section of the proposal are given in Appendix I, Education/Public Outreach Proposals as Part of Proposals to the Outer Planets Program.

3.6 Implementation Plan, Management, Schedule, Cost, and Cost-Estimating Methodology

1. Plans for designing, developing, integrating, testing, and operating flight instrumentation and its supporting systems

   The plans must consider the interactions with the Outer Planets/Solar Probe Project as described in Section 3 of Appendix E, the Pluto-Kuiper Mission and Project Description. The plans must also make specific reference to the deliveries identified in the Statement of Work submitted as part of the proposal.

   This section must begin with an overview that puts the general plans in the context of the approach for managing the performance and reliability of flight instrumentation, its supporting systems, and the software. The approach for ensuring performance must be given, covering at the least:

   - Potential risks to the proposed investigation and plans for mitigating those risks;
   - Technology development plans and back-up plans if the technologies do not meet development needs; and
   - Strategy for minimizing process variability and product variability.

   The approach for assuring reliability must be given, reflecting the requirements given by the Instrument Mission Assurance and Safety Requirements document available through the Outer Planets Program Library at Internet URL http://outerplanets.LaRC.NASA.gov/outerplanets.

The heritage of various parts of the instrumentation, supporting systems, and software must be described. For heritage at the component level, the amount of departure from "build-to-print of qualified component" must be quantified. For each high-heritage component, the past use of the component must be described along with a summary of how the proposed use of the component will differ from the past use. Also for each high-heritage component, the environment of past use must be described along with a summary of how the environment of this proposed use will differ from the environment of past use. For each high-heritage component, the status of the source of heritage must also be given. If the source of heritage has not completed a qualification program, the heritage must be identified as "potential heritage" even though the level of heritage may be high. For flight hardware components with high heritage, compare the mass, power, and volume of the proposed component with the mass, power, and volume of the source of heritage. For claims of heritage at higher levels of integration, similar information must be included in the description.

For any level of heritage claimed, cost information about the referenced sources of heritage will be required in the section on cost-estimating methodology.

This discussion must include the top 3-5 risks and descoping strategies, if relevant.

The section must include a description of the plans for design and systems engineering of the flight instrumentation, supporting systems, and software. The approach to working with the spacecraft and mission design team must be given, and the proposers must describe their capabilities for concurrent engineering.

Fabrication processes must be described, including the team's "in-house" fabrication capability and the availability of capable vendors. The approach to assembly, integration and test for the flight instrumentation, supporting systems, and software must be given--both for the development of the instrumentation and for integration with the spacecraft.

2. Management and Schedule

This section must summarize the investigator's proposed management approach, putting it in the context of the work to be accomplished. A Work Breakdown Structure (WBS must be presented that covers the entire effort of the investigation.

The management organization (including an organization chart) and decision-making process must be described, and the teaming arrangement (as known) must be discussed. The responsibilities of team members, including contributors, and

institutional commitments must be discussed. Unique capabilities that each team member organization brings to the team, as well as previous experience with similar systems and equipment, must be addressed. The specific roles and responsibilities of the Principal Investigator and Project Manager must be described. Management strategies must be described for the control, allocation, and release of technical, cost, and schedule reserves and margins. When contracts are required, the acquisition strategy, including the incentive strategy, must be described.

A proposal may designate a Co-I at an institution other than that of the PI as an *Institutional PI* if the Co-I is making a major contribution to the proposal (e.g., a substantial portion of an experimental investigation) and who serves as the point of contact at the Co-I's institution. (Note: In some cases, NASA may elect to provide an award directly to that Co-I institution with the Institutional PI serving as the "PI" for what otherwise would be a subcontract from the proposing PI institution. However, in this case, the proposal's designated PI is still held responsible by NASA for the overall scientific direction of the proposed effort.)

An investigation schedule covering all phases of the investigation must be provided, along with a more detailed, development schedule covering contract start through launch plus 30 days. The development schedule must include, as a minimum, major project review dates; instrument development; instrument-to-spacecraft integration and test; launch vehicle integration; launch operations; and postlaunch checkout of the instrumentation. Schedule reserve in the development schedule must be clearly identified, and the relationship between the work and the schedule must be explained.

3. Cost and Cost-Estimating Methodology

This section shall include an estimated cost of the investigation that encompasses all proposed activities, divided into two budgets--one for the development phase and one for the operations phase. The budget line items must correspond to the elements at the second level of the proposed Work Breakdown Structure with one budget line summarizing the E/PO effort. Details of the E/PO budget are to be included in the E/PO proposal following the guidelines in Appendix I.

These costs shall be consistent with the program funding requirements described in Section 3.1 of Appendix E, the Pluto-Kuiper Mission and Project Description. The amount required in each fiscal year must be identified by providing the data in Table 3 (development) and Table 4 (operations). Each budget must be presented twice, once in real year dollars and once in fixed, Fiscal Year 2000 dollars. Table 5 gives the inflation model that should be used in converting from real year dollars to Fiscal Year

2000 dollars. These amounts must represent the need for new budget authority allotted to the contract in each fiscal year.

The methodology used to estimate the cost--for example, specific cost model, past performance, or cost estimating relationships from analogous missions--must be discussed. Budget reserve strategy, including budget reserve levels as a function of mission phase, must be discussed. Please provide assumptions used in developing cost estimates to help facilitate the reviewers' understanding of proposed cost estimates. Also, the proposal must provide cost information (in FY 1999, fixed year dollars) about any items that provide heritage to the investigation.

Table 3. Development phase budget profile template

(FY NOA* in Real Year <FY 2000> Dollars, Totals in Real Year <FY 2000> Dollars)

Cost Element**	FY00	FY01	FY02	FY03	FY04	FY05	Total (Real Yr.)
NASA-provided budget authority							
WBS Element 1							
WBS Element 1.1							
...							
Total NASA	$	$	$	$	$	$	$
Contributed budget authority							
WBS Element 1							
WBS Element 1.1							
...							
Total Contributions	$	$	$	$	$	$	$
Total authority (NASA plus contributions)							
WBS Element 1							
WBS Element 1.1							
...							
Total all sources	$	$	$	$	$	$	$

* NOA (new obligation authority) must include all costs including any fees

** Cost elements go to Level 2 of the proposed Work Breakdown Structure

Table 4. Operations phase budget profile template

(FY NOA* in Real Year <FY 2000> Dollars, Totals in Real Year <FY 2000> Dollars)

Cost Element**	FY05	FY06	FY07	...	FY13	FY14	Total (Real Yr.)
NASA-provided budget authority							
WBS Element 1							
WBS Element 1.1							
...							
Total NASA	$	$	$	$	$	$	$
Contributed budget authority							
WBS Element 1							
WBS Element 1.1							
...							
Total Contributions	$	$	$	$	$	$	$
Total authority (NASA plus contributions)							
WBS Element 1							
WBS Element 1.1							
...							
Total all sources	$	$	$	$	$	$	$

* NOA (new obligation authority) must include all costs including any fees

** Cost elements go to Level 2 of the proposed Work Breakdown Structure

Table 5. NASA New Start inflation index

Fiscal Year	1999	2000	2001	2002	2003	2004	2005
Inflation Rate	3.8%	4.1%	3.9%	3.9%	3.9%	3.9%	3.9%
Cumulative Inflation Index	1.000	1.041	1.081	1.123	1.168	1.213	1.260

Use an inflation rate of 3.9% for years beyond 2005.

4. Impact of accelerated schedule

   This part of the proposal must describe what changes would be made in the proposed effort if a decision were made in the first half of calendar year 2000 to accelerate the Pluto-Kuiper Express schedule by 13 months. You would be required to deliver the flight instrumentation, supporting equipment, and documentation by the end of October 2002 and be ready to support a launch in November 2003. Discuss briefly the factors affecting the investigation's readiness for an early launch.

3.7 Resumes

Resumes or curriculum vitae must be provided for all science team members identified in the science section and for other key personnel. Each resume must clearly show experience related to the job the individual will perform on the proposed investigation. Resumes or curriculum vitae must not exceed two pages in length for each participant.

3.8 Statements of Commitment from Co-Investigators

Every Co-I and Collaborator from a U.S. as well as a non-U.S. institution identified as a participant in the proposal must submit a brief, signed statement of commitment that acknowledges his/her participation, even if they are from the PI's own institution. In the case of more than one Co-I and/or Collaborator, a single, multiply-signed statement is acceptable. Each statement must be addressed to the PI, may be a facsimile or E-mail, and must contain the following, or approximately similar, language:

> "I(we) acknowledge that I(we) am(are) identified by name as Co-Investigator(s) [or Collaborator(s)] to the investigation entitled <*name of proposal*> that is submitted by <*name of Principal Investigator*> to the Pluto-Kuiper Express opportunity of the Outer Planets AO, and that I(we) intend to carry out all responsibilities identified for me(us) in this proposal. I(we) understand that the extent and justification of my(our) participation as stated in this proposal will be evaluated during peer review in determining the merits of this proposal."

3.9 Letters of Endorsement

Letters of endorsement must be provided from all organizations offering goods and/or services on a no-exchange-of-funds basis, including non-U.S. organizations providing hardware or software to the investigation. Letters of endorsement must be signed by institutional and/or Government officials authorized to commit their organizations to participation in the

proposed investigation. Copies of faxed or E-mailed letters from non-U.S. participants may be substituted in the submitted proposals as long as signed letters are received by the date and time specified in Section 1.3 of the AO. Non-U.S. organizations must submit the original letters to:

Ms. Wavalene Barnes-Hill
Ref: Pluto-Kuiper Express Mission
Space Science and Aeronautics Division
Code IS
National Aeronautics and Space Administration
Washington, DC 20546-0001
Phone: (202) 358-0900

with a copy to the address given in Section 4.3 of this appendix.

3.10 Contractual Statements of Work

For investigations managed from non-Government institutions, provide a Statement of Work. For investigations managed from Government institutions, provide a Statement of Work as if the institution were non-Government. The Statement of Work must include general task statements for the development phase and for the operations phase of the investigation. All Statements of Work must include the following as a minimum: Scope of Work, Deliverables (including science data), and Government Responsibilities (as applicable). Statements of Work need not be more than a few pages in length. If more than one contractual arrangement between NASA and the proposing team is required, funding information must be provided which identifies how funds are to be allocated among the organizations.

The Statement of Work must make specific reference to the delivery of documentation and other deliverables as described in Section 3 of Appendix E, the Pluto-Kuiper Mission and Project Description.

3.11 NASA PI Hardware Selection Process

Proposals that have NASA employees as Principal Investigators must contain the following information concerning the process by which non-Government participants were included in the proposal. The proposal must (i) indicate that the supplies or services of the proposed non-Government participant(s) are available under an existing NASA contract; (ii) make it clear that the capabilities, products, or services of these participant(s) are sufficiently unique to justify a sole source acquisition; or (iii) describe the open process that was used for selecting proposed team members. While a formal solicitation is not required, the process cited in (iii) must include at least the following competitive aspects: notice of the opportunity to participate to potential sources; submissions from and/or discussions with potential

sources; and objective criteria for selecting team members among interested sources. The proposal must address how the selection of the proposed team members followed the objective criteria and is reasonable from both a technical and cost standpoint. The proposal must also include a representation that the Principal Investigator has examined his/her financial interests in or concerning the proposed team members and has determined that no personal conflict of interest exists. The proposal must provide a certification by a NASA official superior to the Principal Investigator verifying the process for selecting contractors as proposed team members, including the absence of conflicts of interest.

Proposals that do not have NASA employees as Principal Investigators do not have to contain this information.

3.12 References

This section may provide a list of reference documents used in the proposal. The documents themselves cannot be submitted, except as a part of the proposal and included within the prescribed page count.

3.13 Acronym List

Having an acronym list is optional.

4. Submittal Information

4.1 Notice of Intent to Propose

NASA strongly encourages that all prospective proposers submit a Notice of Intent in accordance with the schedule in Section 1.3 of the body of the AO. Proposers must prepare this Notice of Intent in English and submit it electronically using the form found at Internet URL http://cass.jsc.nasa.gov/panel/. Anyone experiencing difficulty with this process must call the Lunar and Planetary Institute for assistance at (281) 486-2137.

4.2 Electronic Cover Page

The cover page for each proposal must be prepared electronically following the instructions in Section 3 of this appendix. The form can be found at Internet URL http://cass.jsc.nasa.gov/panel/. Again, anyone experiencing difficulty with this process must call the Lunar and Planetary Institute for assistance at (281) 486-2137.

4.3 Submittal Address

Proposals must be delivered to:

Pluto-Kuiper Express Program
The Lunar and Planetary Institute
3600 Bay Area Boulevard
Houston, TX 77058
(Delivery phone: 281-486-2189)

by the due date given in Section 1.3 of the body of the AO.

5. Certifications

The following pages contain, for reference only, copies of the three currently required Certifications. Note that the signature of the Authorizing Institutional Representative on the printed copy of the Cover Page submitted with the proposal now verifies that the proposing organization complies with these Certifications; therefore, these Certifications do not have to be independently signed and submitted as in previous Announcements of Opportunity.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211).

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
   (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
   (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statues or commission of embezzlement theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
   (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
   (d) Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Certification Regarding Lobbying

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000, and not more than $100,000 for each such failure.

Certification of Compliance with the NASA Regulations Pursuant to Nondiscrimination in Federally Assisted Programs

The *(Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant ")* hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1962 (20 U.S.C. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and the Age Discrimination Act of 1975 (42 U.S.C. 16101 et seq.), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and hereby give assurance that it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

This assurance is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognized and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.

NASA Form 1206